

REMARKS

Claims 27-41 are pending in the above-identified application and stand rejected. Applicants, having amended the application, respectfully request reconsideration.

Amendments to the Specification and Figures

Applicants have added new Figures 17, 18, 19A, and 19B. But for renumbering of the figures and elements therein, the new figures are identical to respective Figures 9A, 10, 11A, and 11B of U.S. Patent No. 6,772,351, which was incorporated by reference at page 2, lines 3-9, as U.S. Patent Application Serial No. 09/654,643 in the present application. The specification is likewise amended to include the text from the incorporated patent that relates to the new figures. Because all of the subject matter in the new figures and related disclosure is from the originally incorporated reference, the amendments do not add new matter.

Drawing Objections

The examiner objected to the figures as failing to show every claimed feature. In particular, the examiner requested applicants show:

- a) a multi-PAM output driver having a plurality of current-control ports...
- b) a current-calibration circuit coupled to each of the current-control ports, the current-control circuit including a first, second, and third reference-voltage nodes; and
- c) a method of calibrating a multi-PAM output driver adapted to cause an output signal to transition between a plurality of logic states, the method comprising: dividing a reference voltage into a plurality of multi-PAM reference voltages on respective multi-PAM reference-voltage nodes, and shifting the logic states to allow equalization signals to overdrive transitions between the logic states, wherein shifting the logic states includes shifting the multi-PAM reference voltages by drawing an offset current from one of the multi-PAM reference-voltage node...

(Office Action, page 2.) The new figures provide support for these features as follows.

New Figure 17 depicts a multi-PAM output driver (4-PAM in this example) with current control. The output driver includes a number of current-control ports that receive calibration bits CC, CCB, and CCC, which together control the amount of current supplied by the driver.

New Figure 18 depicts a current control calibration circuit 1850 that determines the setting of control bits CC, CCB, and CCC of the 4-PAM driver of Figure 17, in part by selecting a current control reference voltage, V_{REF} . Calibration circuit 1850 develops reference voltage V_{REF} using three reference voltages V_{REFHI} , V_{REFM} and V_{REFLO} , which are provided on three corresponding reference-voltage nodes.

New Figures 19A and 19B depict a method for calibrating a current-controlled, multi-PAM output driver, the driver of Figure 17 for example. The step of “dividing a reference voltage into a plurality of multi-PAM reference voltages...” is not shown in Figure 19A, but is shown instead in Figure 13, which also supports the step of “shifting the multi-PAM reference voltages by drawing an offset current from [a] multi-PAM reference-voltage node...” In that example, the offset current I_{OFFEST} is drawn from reference-voltage node V_{REFHI} . Original Figure 13 and new Figures 17, 18, 19A, and 19B support the calibration method.

Claim Objections

The examiner objected to claim 35, suggesting that the second instance of roman numeral “ii” be changed to “iii,” and further objected to claim 39 as reciting a “method of calibrating” instead of a “method for calibrating.” Applicants have amended claims 35 and 39 as suggested. The examiner additionally objected to claims 36-38, 40, and 41, presumably because they depended from claims 35 and 39. The amendments to claims 35 and 39 are therefore thought to overcome all of the claim objections.

Allowable Subject Matter

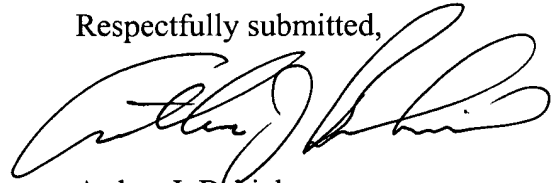
The examiner deemed claims 27-41 to be allowable should the objections to the claims and drawings be overcome. The foregoing minor claim amendments address the examiner’s concerns for the claims, which the new figures providing support in the

drawing for the claimed features. Applicants therefore believe the claims to be in condition for allowance.

CONCLUSION

In light of the foregoing remarks and amendments, the pending claims are in condition for allowance; accordingly, applicants respectfully request a notice of allowance. If the examiner's next action is other than allowance of the pending claims, the Examiner is requested to call applicants' attorney at (925) 621-2113.

Respectfully submitted,



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I hereby certify that this correspondence is being deposited with the United States Postal Service as first-class mail in an envelope addressed to: Mail Stop: Amendment, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on November 23, 2005.

Laurie Moren
Name

[Signature]
Signature

In the Figures

Please add new figures 17, 18, 19A, and 19B as depicted in the attached sheets. These figures are taken from U.S. Patent No. 6,772,351, which was incorporated into the present application as filed. Thus, no new matter is added.